

Application No. 09/543,622  
SD-6358

## REMARKS

### In the Specification

- The specification is amended to correct inadvertent spelling and grammar errors.

### Claim Status:

- Claims 1-29 are pending.
- Claims 1-13, 15-23, 25 and 27-29 are rejected.
- Claims 14 and 24 are objected to.

### New Claims

- New claims 30 - 42 are added (claims 30 and 35 are independent claims). No new matter has been added, and the Specification and drawings fully support the new claims.

### Claim Amendments

- Claims 13, 17-18, 20, 22-23, and 26-28 are cancelled.
- Claims 1, 9-10, 12, 14, 19, 21, 24-25 and 29 are currently amended.
- Claim 1 is amended as follows:

“...a curved glass mirror comprising a single, continuous curved surface...”

“...a curved front sheet comprising a single, continuous curved surface, wherein the curved front sheet has the same curvature as the curved glass mirror...”

- Claim 9 is amended by replacing “0.004” with -- 0.002 --. Support for this voluntary amendment can be found in the Specification at page 8, lines 24-25: “*The core used was commercial grade core made with .002” or .003” foil.*”

- Claim 10 is amended by replacing the words “an expandable foam” with --foam--. Support for this voluntary amendment can be found in the Specification at p. 4, lines 11-13: “*In alternative embodiments, the core material comprises foam selected from the group consisting of polystyrene, polyurethane, and polyvinyl chloride, or a cellulose material.*”

Application No. 09/543,622  
SD-6358

• Claim 12 is amended as follows:

“...affixing a glass mirror comprising a single, continuous surface....”

“ b) affixing, with adhesive, ...”

“ c) affixing, with adhesive, ...”

“ d) shaping and conforming the composite panel...”

“ e) removing the cured composite panel...”

• Claim 13 is cancelled.

• Claim 14 is rewritten in independent form, including all of the limitations of the base claim and any intervening claims.

• Claims 17-18 are cancelled.

• Claim 19 is amended to incorporate the limitations of claim 20, which is cancelled.

• Claim 21 is amended to correct a minor spelling error.

• Claims 22-23 are cancelled.

• Claim 24 is rewritten in independent form, including all of the limitations of the base claim and any intervening claims.

• Claim 25 is amended as follows:

“...affixing a glass mirror comprising a single, continuous surface....”

“...applying a coating of an expandable foam ~~selected from the group consisting of polystyrene, polyurethane, and polyvinyl chloride,...~~”

“ ...curing the foam...”

“...removing the frame from the back sheet and the cured composite panel from the mandrel...”

Support for deleting the Markush grouping “*selected from the group consisting of polystyrene, polyurethane, and polyvinyl chloride*” can be found at p. 5, line 2 in the Specification. Support for adding -- curing the foam -- , and for adding -- the cured composite panel -- can be found at p. 12, line 10 in the Specification.

• Claims 26-28 are cancelled.

Application No. 09/543,622  
SD-6358

- Claim 29 is amended to add the Markush grouping: -- selected from the group consisting of polystyrene, polyurethane, and polyvinyl chloride -- that was deleted from claim 25.

#### Claim Objections

Claims 14 and 24 were objected to as depending upon a rejected base claim. In response, applicant rewrote claims 14 and 24 in independent form, including all of the limitations of the base claim and any intervening claims.

Accordingly, claims 14 and 24, as currently amended, are now in condition for allowance.

#### Claim Rejections – 35 USC 103(a)

##### Claims 1-25 and 27-29

The Office rejected claims 1-25 and 27-29 under 35 USC 103(a) as being as being unpatentable over *Stone* ("Status of Glass Reflector Technology for Heliostats and Concentrators") in view of *Nicolas* (U.S. Patent No. 4,320,164).

In response, applicant amended claim 1 to recite "a curved glass mirror comprising a single, continuous curved surface" and "...a curved front sheet comprising a single, continuous curved surface, wherein the curved front sheet has the same curvature as the curved glass mirror..."

*Stone* teaches flat mirror structures. *Nicolas* teaches a multi-faceted reflecting structure comprising a thick, heavy and rigid support base tiled with multiple segments of relatively small flat "mirror members" arranged side-by-side on the rigid base. See *Nicolas*, Fig. 4, and Col. 1 lines 31-65.

Neither *Stone* or *Nicolas* teach a curved glass mirror comprising a single, continuous curved surface and a curved front sheet [which is bonded to the curved glass mirror to make a glass/sheet laminate] comprising a single, continuous curved surface, wherein the curved front sheet has the same curvature as the curved glass mirror.

Since none of the references cited by the Office teach all of the elements of claim 1, as currently amended, a *prima facie* case of obviousness cannot be supported. Accordingly, the rejection of claim 1 under 35 USC 103(a) should be withdrawn, and claim 1 is now in condition for allowance.

Application No. 09/543,622  
SD-6358

Regarding claim 10, applicant respectively traverses the Office's statement that "*Nicolas teaches the use of a foam material to foam (77) the core of a solar collector (Fig. 6).*" Instead, *Nicolas* teaches that support (77) in Fig. 6 is made of *concrete*, not foam. See *Nicolas* Col. 10, lines 41-44.

Since claims 2-11 depend from claim 1, which is now in condition for allowance, it follows that dependent claims 2-11 are also now in condition for allowance.

Claim 12 was amended as follows:

- "...affixing a glass mirror comprising a single, continuous surface...."
- " b) affixing with adhesive, ..."
- " c) affixing with adhesive, ..."
- " d) shaping and conforming the composite panel..."
- " e) removing the cured composite panel..."

*Nicolas* teaches a method of using a mandrel to support and hold multiple mirror segments/facets arranged side-by-side in a discontinuous, segmented and faceted shape; where concrete slurry is used to hold the individual, rigid mirror segments in place against the mandrel until the concrete cures and sets into a rigid body, whereupon the mandrel can be removed. However, this is not the same as what claim 12 teaches.

Applicant's claim 12, as currently amended, teaches a method of using pressure to **shape and conform** (i.e., *deform*) a composite panel over a mandrel while the **adhesive** that is used to join the various thin layers of the panel together (glass mirror + front sheet + core + back sheet) **cures**. After the adhesive has cured and the panel been removed from the mandrel, the composite panel has a permanently "locked-in" inverse shape of the mandrel. The pressure can be applied, for example, by vacuum-bagging (cl. 15).

Nowhere does *Nicolas* (or *Stone*) teach a method of using pressure to **shape and conform** (i.e., *deform*) a composite panel over a curved mandrel, and holding that shape until the **adhesives cure**, permanently locking the glass mirror/composite panel structure into a **single, continuous curve**.

Since none of the references cited by the Office teach all of the elements of claim 12, as currently amended, a *prima facie* case of obviousness cannot be supported. Accordingly, the

Application No. 09/543,622  
SD-6358

rejection of claim 12 under 35 USC 103(a) should be withdrawn, and claim 12 is now in condition for allowance.

Regarding claim 25, the arguments presented above for claim 12 apply equally well to claim 25. However, in claim 25, the pressure used to deform and shape the composite panel is generated internally by the force of foam expanding in-between (and constrained by) the front and back sheets, reacting against the shaped mandrel on one side, and reacting against the back sheet securely held by a frame spaced at a set distance from the mandrel on the other side.

Nowhere does *Nicolas* (or *Stone*) teach a method of using **internal pressure generated by expanding foam to shape and conform** (i.e., *deform*) a composite panel over a curved mandrel, and holding that shape until the **foam cures**, permanently locking the glass mirror/composite panel structure into a **single, continuous curve**.

Since none of the references cited by the Office teach all of the elements of claim 25, as currently amended, a *prima facie* case of obviousness cannot be supported. Accordingly, the rejection of claim 25 under 35 USC 103(a) should be withdrawn, and claim 25 is now in condition for allowance.

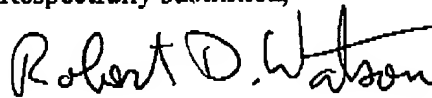
Application No. 09/543,622  
SD-6358

### CONCLUSION

Applicants have responded to each and every objection and rejection, and urge that claims 1-12, 14-16, 19, 21, 24-25 and 29 as presented and amended; and new claims 30 - 42, are now in condition for allowance. Applicants request expeditious processing to issuance.

The Office is authorized to charge Deposit Account # 19-0131 for any necessary fees regarding this response, including: \$ 50 for one additional claim.

Respectfully submitted,



Robert D. Watson  
Reg. No. 45,604

Ph: (505) 845-3139  
Fax: (505) 845-2391

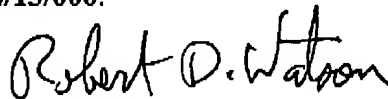
e-mail: rdwatso@sandia.gov

Sandia National Laboratories  
P.O. Box 5800 MS-0161  
Albuquerque, NM 87185-0161

Customer No. 20567

Certificate of Transmission under 37 CFR 1.10

I hereby certify that this correspondence was transmitted via facsimile to the U.S. Patent and Trademark Office at phone number 571-273-8300 on 04/13/006.



Robert D. Watson